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Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)  
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2010; month=11; day=30; hr=14; min=36; sec=15; ms=130;  
]

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Application No: 10560303 Version No: 3.0

**Input Set:****Output Set:**

**Started:** 2010-11-22 16:47:52.407  
**Finished:** 2010-11-22 16:47:55.821  
**Elapsed:** 0 hr(s) 0 min(s) 3 sec(s) 414 ms  
**Total Warnings:** 88  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 120  
**Actual SeqID Count:** 120

Error code	Error Description
W 402	Undefined organism found in <213> in SEQ ID (1)
W 402	Undefined organism found in <213> in SEQ ID (2)
W 402	Undefined organism found in <213> in SEQ ID (3)
W 402	Undefined organism found in <213> in SEQ ID (4)
W 402	Undefined organism found in <213> in SEQ ID (5)
W 402	Undefined organism found in <213> in SEQ ID (6)
W 402	Undefined organism found in <213> in SEQ ID (7)
W 402	Undefined organism found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)

**Input Set:**

**Output Set:**

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**Total Warnings:** 88  
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Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22)
W 213	Artificial or Unknown found in <213> in SEQ ID (23)
W 213	Artificial or Unknown found in <213> in SEQ ID (24)
W 213	Artificial or Unknown found in <213> in SEQ ID (25)
W 213	Artificial or Unknown found in <213> in SEQ ID (26)
W 213	Artificial or Unknown found in <213> in SEQ ID (27)
W 213	Artificial or Unknown found in <213> in SEQ ID (28) This error has occurred more than 20 times, will not be displayed
W 402	Undefined organism found in <213> in SEQ ID (39)
W 402	Undefined organism found in <213> in SEQ ID (43)
W 402	Undefined organism found in <213> in SEQ ID (44)
W 402	Undefined organism found in <213> in SEQ ID (46)
W 402	Undefined organism found in <213> in SEQ ID (50)
W 402	Undefined organism found in <213> in SEQ ID (51)
W 402	Undefined organism found in <213> in SEQ ID (54)
W 402	Undefined organism found in <213> in SEQ ID (55)
W 402	Undefined organism found in <213> in SEQ ID (56)
W 402	Undefined organism found in <213> in SEQ ID (59)
W 402	Undefined organism found in <213> in SEQ ID (61)
W 402	Undefined organism found in <213> in SEQ ID (62) This error has occurred more than 20 times, will not be displayed



# SEQUENCE LISTING

<110> Inouye, Masayori  
Zhang, Junjie  
Zhang, Yong Long  
Qing, Guoliang  
Suzuki, Motoo

<120> mRNA Interferases and Methods of Use Thereof

<130> University of Medicine & Dentistry of New Jersey (601-1-131PCT)

<140> 10560303

<141> 2010-11-22

<150> PCT/US2004/018571

<151> 2004-06-14

<150> 60/543,693

<151> 2004-02-11

<150> 60/478,515

<151> 2003-06-13

<160> 120

<170> FastSEQ for Windows Version 4.0

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<211> 336

<212> DNA

<213> E. coli

<400> 1

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aacaaaacag gtatgtgtct gtgtgttcct tgtacaacgc aatcaaaagg atatccgttc 180
gaagttgttt tatccggtca ggaacgtgat ggcgtagcgt tagctgatca ggtaaaaaagt 240
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<210> 2

<211> 111

<212> PRT

<213> E. coli

<400> 2

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Phe Asp Pro Thr Lys Gly Ser Glu Gln Ala Gly His Arg Pro Ala Val
      20             25             30
Val Leu Ser Pro Phe Met Tyr Asn Asn Lys Thr Gly Met Cys Leu Cys
      35             40             45
Val Pro Cys Thr Thr Gln Ser Lys Gly Tyr Pro Phe Glu Val Val Leu
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50	55	60
Ser Gly Gln Glu Arg Asp Gly Val Ala Leu Ala Asp Gln Val Lys Ser		
65	70	75
Ile Ala Trp Arg Ala Arg Gly Ala Thr Lys Lys Gly Thr Val Ala Pro		
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Glu Glu Leu Gln Leu Ile Lys Ala Lys Ile Asn Val Leu Ile Gly		
	100	105
		110

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 <211> 333  
 <212> DNA  
 <213> E. coli

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 ggaacgcggc cgggtgctgat tgtcacaccg gcggccttta atcgcgtgac ccgcctgcct 120  
 gttgttgtgc ccgtaaccag cggaggcaat tttgcccgca ctgccggctt tgcgggtgtcg 180  
 ttggatggtg ttggcatacg taccacaggt gttgtacgtt gcgatcaacc ccggacaatt 240  
 gatatgaaag cacggggcgg aaaacgactc gaacgggttc cggagactat catgaacgaa 300  
 gttcttggcc gcctgtccac tattctgact tga 333

<210> 4  
 <211> 110  
 <212> PRT  
 <213> E. coli

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His Glu Gln Gln Gly Thr Arg Pro Val Leu Ile Val Thr Pro Ala Ala
20 25 30
Phe Asn Arg Val Thr Arg Leu Pro Val Val Val Pro Val Thr Ser Gly
35 40 45
Gly Asn Phe Ala Arg Thr Ala Gly Phe Ala Val Ser Leu Asp Gly Val
50 55 60
Gly Ile Arg Thr Thr Gly Val Val Arg Cys Asp Gln Pro Arg Thr Ile
65 70 75 80
Asp Met Lys Ala Arg Gly Gly Lys Arg Leu Glu Arg Val Pro Glu Thr
85 90 95
Ile Met Asn Glu Val Leu Gly Arg Leu Ser Thr Ile Leu Thr
100 105 110

<210> 5  
 <211> 249  
 <212> DNA  
 <213> E. coli

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 ttaatgcagg cgctcaatct gaattattgat gatgaagtga agattgacct ggtggatggc 120

aaattaatta ttgagccagt gcgtaaagag cccgtattta cgcttgctga actgggtcaac 180  
gacatcacgc cggaaaacct ccacgagaat atcgactggg gagagccgaa agataaggaa 240  
gtctggttaa 249

<210> 6  
<211> 82  
<212> PRT  
<213> E. coli

<400> 6  
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1 5 10 15  
Ile Pro Ala Thr Leu Met Gln Ala Leu Asn Leu Asn Ile Asp Asp Glu  
20 25 30  
Val Lys Ile Asp Leu Val Asp Gly Lys Leu Ile Ile Glu Pro Val Arg  
35 40 45  
Lys Glu Pro Val Phe Thr Leu Ala Glu Leu Val Asn Asp Ile Thr Pro  
50 55 60  
Glu Asn Leu His Glu Asn Ile Asp Trp Gly Glu Pro Lys Asp Lys Glu  
65 70 75 80  
Val Trp

<210> 7  
<211> 258  
<212> DNA  
<213> E. coli

<400> 7  
atgcatacca cccgactgaa gaggggtggc ggctcagtta tgctgaccgt cccaccggca 60  
ctgctgaatg cgctgtctct gggcacagat aatgaagttg gcatgggtcat tgataatggc 120  
cggctgattg ttgagccgta cagacgcccg caatattcac tggctgagct actggcacag 180  
tgtgatccga atgctgaaat atcagctgaa gaacgagaat ggctggatgc accggcgact 240  
ggtcaggagg aaatctga 258

<210> 8  
<211> 85  
<212> PRT  
<213> E. coli

<400> 8  
Met His Thr Thr Arg Leu Lys Arg Val Gly Gly Ser Val Met Leu Thr  
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20 25 30  
Val Gly Met Val Ile Asp Asn Gly Arg Leu Ile Val Glu Pro Tyr Arg  
35 40 45  
Arg Pro Gln Tyr Ser Leu Ala Glu Leu Leu Ala Gln Cys Asp Pro Asn  
50 55 60  
Ala Glu Ile Ser Ala Glu Glu Arg Glu Trp Leu Asp Ala Pro Ala Thr  
65 70 75 80  
Gly Gln Glu Glu Ile  
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<210> 9  
 <211> 24  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> T54 to K77 fragment of E. coli MazE  
  
 <400> 9  
 Thr Leu Ala Glu Leu Val Asn Asp Ile Thr Pro Glu Asn Leu His Glu  
 1 5 10 15  
 Asn Ile Asp Trp Gly Glu Pro Lys  
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<210> 10  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> N60 to K77 fragment of E. coli MazE  
  
 <400> 10  
 Asn Asp Ile Thr Pro Glu Asn Leu His Glu Asn Ile Asp Trp Gly Glu  
 1 5 10 15  
 Pro Lys

<210> 11  
 <211> 30  
 <212> RNA  
 <213> Artificial Sequence

<220>  
 <223> synthetic RNA substrate

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<210> 12  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> single stranded oligonucleotide

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<210> 13  
 <211> 50



<212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> single stranded oligonucleotide  
  
 <400> 13  
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 <210> 14  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic oligonucleotide  
  
 <400> 14  
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 <210> 15  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 15  
 ttagagatca atttcttgcc gttttac 27  
  
  
 <210> 16  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 16  
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 <210> 17  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 17  
 tgctctttat cccacgggca gc 22  
  
  
 <210> 18  
 <211> 24

<212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 18  
 gccagttca ccggaagat cgtc 24  
  
 <210> 19  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 19  
 ggttttgatt tgctcccaac gggcaag 27  
  
 <210> 20  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 20  
 catttcctcc tccagtttag cctggtc 27  
  
 <210> 21  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
 <400> 21  
 ttgccagact tcttcattg tttegag 27  
  
 <210> 22  
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 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> DNA primer  
  
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 <210> 23  
 <211> 24  
 <212> DNA  
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<220>  
 <223> DNA primer

<400> 23  
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<210> 24  
 <211> 24  
 <212> DNA  
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<220>  
 <223> DNA primer

<400> 24  
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<210> 25  
 <211> 24  
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<220>  
 <223> DNA primer

<400> 25  
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<210> 26  
 <211> 30  
 <212> RNA  
 <213> Artificial Sequence

<220>  
 <223> antisense RNA

<400> 26  
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<210> 27  
 <211> 30  
 <212> DNA  
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<220>  
 <223> complementary DNA

<400> 27  
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 <212> DNA  
 <213> Artificial Sequence

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<223> DNA primer	
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<211> 9	
<212> DNA	
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<223> DNA fragment from pCold I vector	
<400> 29	
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<223> DNA fragment from pCold I vector	
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<210> 32	
<211> 12	
<212> DNA	
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<223> DNA fragment from pCold I vector	
<400> 32	
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<210> 33	
<211> 60	
<212> DNA	
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<220>	
<223> multiple cloning site	

<400> 33  
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<210> 34  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA primer

<400> 34  
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<210> 35  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA primer

<400> 35  
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<210> 36  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA primer

<400> 36  
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<210> 37  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> DNA primer

<400> 37  
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<210> 38  
<211> 23  
<212> DNA  
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<220>  
<223> DNA primer

<400> 38

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23

<210> 39

<211> 330

<212> DNA

<213> *Bacillus halodurans*

<400> 39

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ggttttgcgg tggtttggtcc aattaccaga caacaaaaag gttatccttt tgaaatagaa 180  
ataccaccgg ggttacctat tgaaggggtt attcttactg accaagtaa aagtctggat 240  
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ttacaactta ttcatacatt tttatcttaa 330

<210> 40

<211> 363

<212> DNA

<213> *Staphylococcus epidermidis*

<400> 40

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gtaattgtag ctgcgattac tgatgggatt aataaagcga aaataccaac ccacgtagaa 180  
attgaaaaga aaaagtataa attagacaaa gattcagtta ttcttcttga acaaattaga 240  
acactagata aaaagcggtt aaaagaaaaa ttaacatttt tatcagagag taaaatgata 300  
gagggtgata atgccttaga tattagtttg ggattaaata actttgatca tcataaatct 360  
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<210> 41

<211> 411

<212> DNA

<213> *Staphylococcus aureus*

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gttattgttg cggcaataac tggtaggatt aataaagcga aaataccgac acatgtagag 180  
attgaaaaga aaaagtataa gttggataaa gactcagtta tattattaga acaaattcgt 240  
acacttgata aaaaacgatt gaaagaaaaa ctgacgtact tatccgatga taaaatgaaa 300  
gaagtagata atgcactaat gattagttta gggctgaatg cagtagctca accagaaaaa 360  
ttaggcgtct attatatgta tttttcagag ataaataaaa tattgatata a 411

<210> 42

<211> 351

<212> DNA

<213> *Bacillus subtilis*

<400> 42

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actgctattg ttgcagccat aacagcacia atacagaaag cgaaattacc aaccacgtc 180  
gaaatcgatg caaaacgcta cggttttgaa agagattccg ttattttgct ggagcaaatt 240  
cggacgattg acaagcaaag gttaacggat aagattactc atctggatga tgaaatgatg 300  
gataaggttg atgaagcctt acaaatcagt ttggcactca ttgattttta g 351

<210> 43  
<211> 324  
<212> DNA  
<213> *Neisseria meningitides*

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aagactgtgc tgatcgttcc catgacgagc ggaagccgtc ctgccccgtt ccgcgtcaat 180  
gtccgcctttc aggataaaga cggtttgctt ttgcccgaac agattagggc tgtggataaa 240  
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<210> 44  
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<212> DNA  
<213> *Morganella morgani*

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ccggctgctt ttaaccgcgt gaccgcctg cctgttggtg tgcccgtagc cagcggaggt 180  
aattttgccc gcacagcagg ctttgcgtgtg tcgcttgacc gcgccggcat acgtaccacc 240  
ggcggttggtc gttgcgatca accccggacg atcgatatga aagcccgcg cggcaaacga 300  
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acctga 366

<210> 45  
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<212> DNA  
<213> *Mycobacterium tuberculosis*

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accgtggtgc cgacgtcgac aagcgcccaa cctgcgggtt tccgaccaga gctggaagtc 180  
atgggaacaa agacacgggt cctggtggat cagatccgga cgatcggcat cgtctatgtg 240  
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gcacgatacc ttggtctgtg a 321

<210> 46  
<211> 109  
<212> PRT  
<213> *Bacillus halodurans*

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Pro Lys Leu Phe Asn Lys Asn Thr Gly Phe Ala Val Val Cys Pro Ile  
35 40 45  
Thr Arg Gln Gln Lys Gly Tyr Pro Phe Glu Ile Glu Ile Pro Pro Gly  
50 55 60  
Leu Pro Ile Glu Gly Val Ile Leu Thr Asp Gln Val Lys Ser Leu Asp  
65 70 75 80

Trp Arg Ala Arg Asn Phe His Ile Lys Gly Gln Ala Pro Glu Glu Thr  
85 90 95  
Val Thr Asp Cys Leu Gln Leu Ile His Thr Phe Leu Ser  
100 105

<210> 47  
<211> 120  
<212> PRT  
<213> *Staphylococcus epidermidis*

<400> 47  
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Thr Gly Asn Lys Tyr Ser Pro Thr Val Ile Val Ala Ala Ile Thr Asp  
35 40 45  
Gly Ile Asn Lys Ala Lys Ile Pro Thr His Val Glu Ile Glu Lys Lys  
50 55 60  
Lys Tyr Lys Leu Asp Lys Asp Ser Val Ile Leu Leu Glu Gln Ile Arg  
65 70 75 80  
Thr Leu Asp Lys Lys Arg Leu Lys Glu Lys Leu Thr Phe Leu Ser Glu  
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Ser Lys Met Ile Glu Val Asp Asn Ala Leu Asp Ile Ser Leu Gly Leu  
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115 120

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<212> PRT  
<213> *Staphylococcus aureus*

<400> 48  
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35 40 45  
Arg Ile Asn Lys Ala Lys Ile Pro Thr His Val Glu Ile Glu Lys Lys  
50 55 60  
Lys Tyr Lys Leu Asp Lys Asp Ser Val Ile Leu Leu Glu Gln Ile Arg  
65 70 75 80  
Thr Leu Asp Lys Lys Arg Leu Lys Glu Lys Leu Thr Tyr Leu Ser Asp  
85 90 95  
Asp Lys Met Lys Glu Va